

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re the Application of:) DIMENSIONS”)
ROCKWOOD et al.) Prior Group Art Unit: 2671)
Serial No.: Not Yet Assigned) Prior Examiner: Lance W. Sealey)
Filed: Herewith)
Atty. File No.: 3404-2-1)
For “COMPUTATIONAL GEOMETRY) Express Mail Label: EV 331286156 US
USING CONTROL GEOMETRY)
HAVING AT LEAST TWO)
DIMENSIONS”)

Assistant Commissioner for Patents
Washington, D. C. 20231

Sir:

The references cited on attached Form PTO-1449 are being called to the attention of the Examiner.

Copies of the cited references:

- Enclosed herewith are two references which are labeled with an asterisk. All other references are not enclosed.
- Are not enclosed, in accordance with 37 C.F.R. 1.98(d), because the references were submitted to the U.S. Patent and Trademark Office in prior application Serial No. 09/360,029 filed July 23, 1999, which is relied upon for an earlier filing date under 35 U.S.C. § 120
- To the best of applicants' belief, the pertinence of the foreign-language references are believed to be summarized in the attached English abstracts and in the figures, although applicants do not necessarily vouch for the accuracy of the translation.
- Examiner's attention is drawn to the following co-pending applications, copies of which have been or are being submitted:

Serial No. 09/360,029 filed July 23, 1999

Submission of the above information is not intended as an admission that any item is citable under the statutes or rules to support a rejection, that any item disclosed represents analogous art, or that those skilled in the art would refer to or recognize the pertinence of any reference without the benefit of hindsight, nor should an inference be drawn as to the pertinence of the references based on the order in which they are presented. Submission of this statement should not be taken as an indication that a search has been conducted, or that no

better art exists.

It is respectfully requested that the cited information be expressly considered during the prosecution of this application and the references made of record therein.

FEES

<input checked="" type="checkbox"/>	<p>37 CFR 1.97(b): No fee is believed due in connection with this submission, because the information disclosure statement submitted herewith satisfies one of the following conditions ("X" indicates satisfaction):</p> <ul style="list-style-type: none"><input checked="" type="checkbox"/> Within three months of the filing date of a national application other than a continued prosecution application under 37 CFR 1.53(d), or<input type="checkbox"/> Within three months of the date of entry into the national stage of an international application as set forth in 37 CFR 1.491 or<input type="checkbox"/> Before the mailing date of a first Office Action on the merits, or<input type="checkbox"/> Before the mailing of a first Office action after the filing of a request for continued examination under 37 CFR 1.114. <p>Although no fee is believed due, if any fee is deemed due in connection with this submission, please charge such fee to Deposit Account 19-1970.</p>
<input type="checkbox"/>	<p>37 CFR 1.97(c): The information disclosure statement transmitted herewith is being filed after all the above conditions (37 CFR 1.97(b)), but before the mailing date of one of the following conditions:</p> <ol style="list-style-type: none">(1) a final action under 37 C.F.R. 1.113 or(2) a notice of allowance under 37 C.F.R. 1.311, or(3) an action that otherwise closes prosecution in the application. <p>This Information Disclosure Statement is accompanied by:</p> <ul style="list-style-type: none"><input type="checkbox"/> A Certification (below) as specified by 37 C.F.R. 1.97(e). Although no fee is believed due, if any fee is deemed due in connection with this submission, please charge such fee to Deposit Account 19-1970. <p>OR</p> <ul style="list-style-type: none"><input type="checkbox"/> A check in the amount of \$180.00 for the fee set forth in 37 C.F.R. 1.17(p) for submission of an information disclosure statement. Please credit any overpayment or charge any underpayment to Deposit Account No. 19-1970.
<input type="checkbox"/>	<p>37 CFR 1.97(d): This Information Disclosure Statement is being submitted after the period specified in 37 CFR 1.97(c).</p> <ul style="list-style-type: none"><input type="checkbox"/> This information Disclosure Statement includes a Certification (below) as specified by 37 C.F.R. 1.97(e) <p>AND</p> <ul style="list-style-type: none"><input type="checkbox"/> Applicants hereby requests consideration of the reference(s) disclosed herein. Enclosed is the fee in the amount of \$180.00 under 37 C.F.R. 1.17(p). Please credit any overpayment or charge any underpayment to Deposit Account No. 19-1970. Please credit any overpayment or charge any underpayment to Deposit Account No. 19-1970. <p>Election to pay the fee should not be taken as an indication that applicant(s) cannot execute a certification.</p>

Certification (37 C.F.R. 1.97(e))
(Applicable only if checked)

The undersigned certifies that:

Each item of information contained in this information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this statement. 37 C.F.R. 1.97(e)(1).

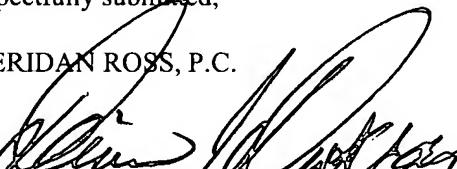
A copy of the communication from the foreign patent office is enclosed.

OR

No item of information contained in this information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the undersigned after making reasonable inquiry, no item of information contained in this Information Disclosure Statement was known to any individual designated in 37 C.F.R. 1.56(c) more than three months prior to the filing of this statement. 37 C.F.R. 1.97(e)(2).

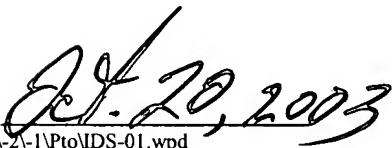
Respectfully submitted,

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FORM PTO-1449 U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTY. DOCKET NO. 3404-2-1	SERIAL NO. Not Yet Assigned
INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary)		APPLICANT ROCKWOOD et al.	
		FILING DATE Herewith	GROUP ART 2671

U.S. PATENT DOCUMENTS

*EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE IF APPROP.
1	6,369,815*	4/9/02	Celniker et al.	345	420	
2	6,256,038*	7/3/01	Krishnamurthy	345	419	
3	6,133,922	10/17/2000	Opitz	345	420	
4	5,966,133	10/12/1999	Hoppe	345	420	
5	5,963,209	10/5/1999	Hoppe	345	419	
6	5,856,828	6/5/1999	Letcher, Jr.	345	420	
7	5,745,666	4/28/1998	Gilley et al.	395	128	
6	5,636,338	6/3/1997	Moreton	395	142	
9	5,237,647	8/17/1993	Roberts et al.	395	119	
10	5,818,452	10/06/98	Atkinson et al.	345	420	
11	5,748,192	05/05/98	Lindholm	345	425	
12	5,731,816	03/24/98	Stewart et al.	345	419	
13	5,636,338	06/03/97	Moreton	395	142	
14	5,619,625	04/08/97	Konno et al.	395	119	
15	5,608,856	03/04/97	McInally	395	142	
16	5,579,464	11/26/96	Saito et al.	395	141	
17	5,557,719	09/17/96	Ooka et al.	395	141	
18	5,510,995	04/23/96	Oliver	364	474.24	
15	5,497,451	03/05/96	Holmes	395	120	
20	5,481,659	01/02/96	Nosaka et al.	395	123	
24	5,473,742	12-5-95	Polyakov et al.	395	142	
22	5,459,821	10/17/95	Kuriyama et al.	395	120	
23	5,299,302	03/29/94	Fiasconaro	395	142	
24	5,257,203	10/26/93	Riley et al.	364	474.05	
25	5,251,160	10/05/93	Rockwood et al.	364	578	
26	5,185,855	02/09/93	Kato et al.	395	129	
27	5,123,087	06/16/92	Newell et al.	395	155	

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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.	

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	28	4,821,214	04/11/89	Sederberg	364	522	
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OTHER ART (Including Author, Title, Date, Pertinent Pages, etc.)

30	Adi Levin, "Interpolating Nets of Curves by Smooth Subdivision Surfaces", <i>SIGGRAPH 99, Los Angeles, California</i> , August 8-13, 1999, pp. 57-64
31	James et al., "Accurate Real Time Deformable Objects", <i>SIGGRAPH 99, Los Angeles, California</i> , August 8-13, 1999, pp. 65-72
32	Markosian et al., "Skin: A Constructive Approach to Modeling Free-form Shapes", <i>SIGGRAPH 99, Los Angeles, California</i> , August 8-13 1999, pp. 393-400
33	Igarashi et al., "Teddy: A Sketching Interface for 3D Freeform Design", <i>SIGGRAPH 99, Los Angeles, California</i> , August 8-13, 1999, pp. 409-416
34	Stam, "Exact Evaluation of Catmull-Clark Subdivision Surfaces at Arbitrary Parameter Values", <i>SIGGRAPH 98, Orlando, Florida</i> , July 19-24, 1998, pp. 395-404
35	Singh et al., "Wires: A Geometric Deformation Technique", <i>SIGGRAPH 98, Orlando, Florida</i> , July 19-24, 1998, pp. 405-414
36	Amenta et al., "A New Voronoi-Based Surface Reconstruction Algorithm", <i>SIGGRAPH 98, Orlando, Florida</i> , July 19-24, 1998, pp. 415-421
37	Sederberg et al., "Non-Uniform Recursive Subdivision Surfaces", <i>SIGGRAPH 98, Orlando, Florida</i> , July 19-24, 1998, pp. 387-394
38	Weiss, "BE VISION, A Package of IBM 7090 FORTRAN Programs to Draw Orthographic Views of Combinations of Plane and Quadric Surfaces", <i>Bell Telephone Laboratories, Inc., Murray Hill, New Jersey</i> , April 1996, pp. 194-204
39	Barghiel et al., "Pasting Spline Surfaces", from <i>Mathematical Methods for Curves and Surfaces</i> , Editors: Lyche and Schumaker, copyright <i>Vanderbilt University Press</i> 1995, pp. 31-40, ISBN 8265-1268-2
40	Brunnett et al., "Spline elements on Spheres" from <i>Mathematical Methods for Curves and Surfaces</i> , Editors: Lyche and Schumaker, copyright <i>Vanderbilt University Press</i> 1995, pp. 49-54, ISBN 8265-1268-2
41	M.D. Buhmann et al., "Spectral Properties and Knot Removal for Interpolation by Pure Radial Sums", from <i>Mathematical Methods for Curves and Surfaces</i> , Editors: Lyche and Schumaker, copyright <i>Vanderbilt University Press</i> 1995, pp. 55-62, ISBN 8265-1268-2
42	Ma et al., "NURBS Curve and Surface Fitting and Interpolation", from <i>Mathematical Methods for Curves and Surfaces</i> , Editors: Lyche and Schumaker, copyright <i>Vanderbilt University Press</i> 1995, pp. 315-322, ISBN 8265-1268-2
43	W.L.F. Degen, "High Accuracy Approximation of Parametric Curves", from <i>Mathematical Methods for Curves and Surfaces</i> , Editors: Lyche and Schumaker, copyright <i>Vanderbilt University Press</i> 1995, pp. 83-98, ISBN 8265-1268-2
44	Lodha et al., "Duality between Degree Elevation and Differentiation of B-bases and L-bases", from <i>Mathematical Methods for Curves and Surfaces</i> , Editors: Lyche and Schumaker, copyright <i>Vanderbilt University Press</i> 1995, pp. 305-314, ISBN 8265-1268-2

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45	Dyn et al., "Piecewise Uniform Subdivision Schemes", from <u>Mathematical Methods for Curves and Surfaces</u> , Editors: Lyche and Schumaker, copyright <u>Vanderbilt University Press</u> 1995, pp. 111-119, ISBN 8265-1268-2
46	Ellens et al., "An Approach to C ⁽¹⁾ and C ⁽⁰⁾ Feature Lines", from <u>Mathematical Methods for Curves and Surfaces</u> , Editors: Lyche and Schumaker, copyright <u>Vanderbilt University Press</u> 1995, pp. 121-132, ISBN 8265-1268-2
47	G. Farin, "The Geometry of C ¹ Projective curves and Surfaces", from <u>Mathematical Methods for Curves and Surfaces</u> , Editors: Lyche and Schumaker, copyright <u>Vanderbilt University Press</u> 1995, pp. 133-139, ISBN 8265-1268-2
48	M.S. Floater, "Rational Cubic Implicitization", from <u>Mathematical Methods for Curves and Surfaces</u> , Editors: Lyche and Schumaker, copyright <u>Vanderbilt University Press</u> 1995, pp. 151-159, ISBN 8265-1268-2
49	Baining Guo, "Avoiding Topological Anomalies in Quadric Surface Patches", from <u>Mathematical Methods for Curves and Surfaces</u> , Editors: Lyche and Schumaker, copyright <u>Vanderbilt University Press</u> 1995, pp. 177-186, ISBN 8265-1268-2
50	Jan Hadenfeld, "Local Energy Fairing of B-Spline Surfaces", from <u>Mathematical Methods for Curves and Surfaces</u> , Editors: Lyche and Schumaker, copyright <u>Vanderbilt University Press</u> 1995, pp. 203-212, ISBN 8265-1268-2
51	Hermann et al., "Techniques for Variable Radius Rolling Ball Blends", from <u>Mathematical Methods for Curves and Surfaces</u> , Editors: Lyche and Schumaker, copyright <u>Vanderbilt University Press</u> 1995, pp. 225-236, ISBN 8265-1268-2
52	Hoschek et al., "Interpolation and Approximation with Developable B-Spline Surfaces", from <u>Mathematical Methods for Curves and Surfaces</u> , Editors: Lyche and Schumaker, copyright <u>Vanderbilt University Press</u> 1995, pp. 255-264, ISBN 8265-1268-2
53	Leif Kobbelt, "Interpolatory Refinement as a Low Pass Filter", from <u>Mathematical Methods for Curves and Surfaces</u> , Editors: Lyche and Schumaker, copyright <u>Vanderbilt University Press</u> 1995, pp. 281-290, ISBN 8265-1268-2
54	Kolb et al., "Surface Reconstruction Based Upon Minimum Norm Networks", from <u>Mathematical Methods for Curves and Surfaces</u> , Editors: Lyche and Schumaker, copyright <u>Vanderbilt University Press</u> 1995, pp. 293-304, ISBN 8265-1268-2
55	Stephen Mann, "Using Local Optimization in Surface Fitting", from <u>Mathematical Methods for Curves and Surfaces</u> , Editors: Lyche and Schumaker, copyright <u>Vanderbilt University Press</u> 1995, pp. 323-332, ISBN 8265-1268-2
56	Manni et al., "C ¹ Comonotone Hermite Interpolation via Parametric Surfaces", from <u>Mathematical Methods for Curves and Surfaces</u> , Editors: Lyche and Schumaker, copyright <u>Vanderbilt University Press</u> 1995, pp. 333-342, ISBN 8265-1268-2
57	A. Markus et al., "Genetic Algorithms in Free Form Curve Design", from <u>Mathematical Methods for Curves and Surfaces</u> , Editors: Lyche and Schumaker, copyright <u>Vanderbilt University Press</u> 1995, pp. 43-354, ISBN 8265-1268-2
58	Even Mehlgum, "Appeal and the Apple (Nonlinear Splines in Space)", from <u>Mathematical Methods for Curves and Surfaces</u> , Editors: Lyche and Schumaker, copyright <u>Vanderbilt University Press</u> 1995, pp. 365-384, ISBN 8265-1268-2
59	Helmut Pottmann, "Studying NURBS curves and Surfaces with Classical Geometry", from <u>Mathematical Methods for Curves and Surfaces</u> , Editors: Lyche and Schumaker, copyright <u>Vanderbilt University Press</u> 1995, pp. 413-438, ISBN 8265-1268-2
60	R. Schaback, "Creating Surfaces from Scattered Data Using Radial Basis Functions", from <u>Mathematical Methods for Curves and Surfaces</u> , Editors: Lyche and Schumaker, copyright <u>Vanderbilt University Press</u> 1995, pp. 477-496, ISBN 8265-1268-2
61	Sederberg, "Shape Blending of 2-D Piecewise Curves", from <u>Mathematical Methods for Curves and Surfaces</u> , Editors: Lyche and Schumaker, copyright <u>Vanderbilt University Press</u> 1995, pp. 497-506, ISBN 8265-1268-2

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62	Weller et al., "Tensor-Product Spline Spaces with Knot Segments", from <u>Mathematical Methods for Curves and Surfaces</u> , Editors: Lyche and Schumaker, copyright <i>Vanderbilt University Press</i> 1995, pp. 563-572, ISBN 8265-1268-2
63	Kenji Ueda, "Normalized Cyclide Bezier Patches", from <u>Mathematical Methods for Curves and Surfaces</u> , Editors: Lyche and Schumaker, copyright <i>Vanderbilt University Press</i> 1995, pp. 507-516, ISBN 8265-1268-2
64	Varady et al., "Vertex Blending Based on the Setback Split", from <u>Mathematical Methods for Curves and Surfaces</u> , Editors: Lyche and Schumaker, copyright <i>Vanderbilt University Press</i> 1995, pp. 527-542, ISBN 8265-1268-2
65	J. Warren, "Binary Subdivision Schemes for Functions over Irregular Know Sequences", from <u>Mathematical Methods for Curves and Surfaces</u> , Editors: Lyche and Schumaker, copyright <i>Vanderbilt University Press</i> 1995, pp. 543-562, ISBN 8265-1268-2
66	T.D. DeRose, "Applications of Multiresolution Surfaces", <u>The Mathematics of Surfaces VII</u> , Editors: Goodman and Martin, <i>Information Geometers</i> , 1997, pp. 1-15
67	G. Albrecht, "A geometrical design handle for rational triangular Bezier patches", <u>The Mathematics of Surfaces VII</u> , Editors: Goodman and Martin, <i>Information Geometers</i> , 1997, pp. 161-171
68	A. Nasri, "Interpolation of open B-spline curves by recursive subdivision surfaces", <u>The Mathematics of Surfaces VII</u> , Editors: Goodman and Martin, <i>Information Geometers</i> , 1997, pp. 173-188
69	Ives-Smith et al., "Methods of surface airing of spline surfaces within shipbuilding", <u>The Mathematics of Surfaces VII</u> , Editors: Goodman and Martin, <i>Information Geometers</i> , 1997, pp. 209-221
70	Rausch et al. "Computation of medial curves on surfaces", <u>The Mathematics of Surfaces VII</u> , Editors: Goodman and Martin, <i>Information Geometers</i> , 1997, pp. 43-68
71	M.J. Pratt, "Classification and characterization of supercyclides", <u>The Mathematics of Surfaces VII</u> , Editors: Goodman and Martin, <i>Information Geometers</i> , 1997, pp. 25-41
72	A.A. Ball, "CAD: master or servant of engineering?", <u>The Mathematics of Surfaces VII</u> , Editors: Goodman and Martin, <i>Information Geometers</i> , 1997, pp. 17-33
73	Bloor et al., "The PDE method in geometric and functional design", <u>The Mathematics of Surfaces VII</u> , Editors: Goodman and Martin, <i>Information Geometers</i> , 1997, pp. 281-307
74	Pottmann et al., "Principal surfaces", <u>The Mathematics of Surfaces VII</u> , Editors: Goodman and Martin, <i>Information Geometers</i> , 1997, pp. 337-362
75	Froumentin et al., "Quadric surfaces: a survey with new results", <u>The Mathematics of Surfaces VII</u> , Editors: Goodman and Martin, <i>Information Geometers</i> , 1997, pp. 363-381
76	Liu et al., "Shape control and modification of rational cubic B-spline curves", <u>The Mathematics of Surfaces VII</u> , Editors: Goodman and Martin, <i>Information Geometers</i> , 1997, pp. 383-391
77	Hall et al., "Shape modification of Gregory patches", <u>The Mathematics of Surfaces VII</u> , Editors: Goodman and Martin, <i>Information Geometers</i> , 1997, pp. 393-408
78	Peters et al., "Smooth blending of basic surfaces using trivariate box splines", <u>The Mathematics of Surfaces VII</u> , Editors: Goodman and Martin, <i>Information Geometers</i> , 1997, pp. 409-426
79	R.E. Barnhill, "Computer Aided Surface Representation and Design", <u>Surfaces In Computer Aided Geometric Design</u> , North-Holland Publishing, 1983, pp. 1-24
80	John A. Gregory, "C ¹ Rectangular and Non-Rectangular Surface Patches", <u>Surfaces In Computer Aided Geometric Design</u> , North-Holland Publishing, 1983, pp. 25-33

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81	Gerald Farin, "Smooth Interpolation to Scattered 3D Data", <u>Surfaces In Computer Aided Geometric Design</u> , North-Holland Publishing, 1983, pp. 43-62
82	Juergen Kahnmann, "Continuity of Curvature Between Adjacent Bezier Patches", <u>Surfaces In Computer Aided Geometric Design</u> , North-Holland Publishing, 1983, pp. 65-75
83	Wolfgang Boehm, "Generating the Bezier Points of Triangular Splines", <u>Surfaces In Computer Aided Geometric Design</u> , North-Holland Publishing, 1983, pp. 77-91
84	Frank F. Little, "Convex Combination Surfaces", <u>Surfaces In Computer Aided Geometric Design</u> , North-Holland Publishing, pp.99-107
85	Wolfgang Boehm, "The De Boor Algorithm for Triangular Splines", <u>Surfaces In Computer Aided Geometric Design</u> , North-Holland Publishing, 1983, pp. 109-120
86	Josef Hoschek, "Dual Bezier Curves and Surfaces", <u>Surfaces In Computer Aided Geometric Design</u> , North-Holland Publishing, 1983, pp. 147-156
87	Dahmen et al., "Multivariate Splines - A New Constrictive Approach", <u>Surfaces In Computer Aided Geometric Design</u> , North-Holland Publishing, 1983, pp. 191-215
88	Atteia et al., "Spline elastic Manifolds", <u>Mathematical Methods in Computer Aided Geometric Design</u> , Editors: Lynch and Schumaker, 1989, pp. 45-50
89	Barry et al., "What is the Natural Generalization of a Bezier Curve?", <u>Mathematical Methods in Computer Aided Geometric Design</u> , Editors: Lynch and Schumaker, 1989, pp. 71-85
90	Billera et al., "Grobner Basis Methods for Multivariate Splines", <u>Mathematical Methods in Computer Aided Geometric Design</u> , Editors: Lynch and Schumaker, 1989, pp. 93-104
91	Cavaretta et al., "The Design of Curves and Surfaces by Subdivision Algorithms", <u>Mathematical Methods in Computer Aided Geometric Design</u> , Editors: Lynch and Schumaker, 1989, pp. 115-153
92	Wolfgang Dahmen, "Smooth Piecewise quadric Surfaces", <u>Mathematical Methods in Computer Aided Geometric Design</u> , Editors: Lynch and Schumaker, 1989, pp. 181-193
93	Gerald Farin, "Rational Curves and Surfaces", <u>Mathematical Methods in Computer Aided Geometric Design</u> , Editors: Lynch and Schumaker, 1989, pp. 215-238
94	Klaus Hollig, "Box-Spline Surfaces", <u>Mathematical Methods in Computer Aided Geometric Design</u> , Editors: Lynch and Schumaker, 1989, pp. 385-402
95	R.A. Lorentz, "Uniform bivariate Hermite Interpolation", <u>Mathematical Methods in Computer Aided Geometric Design</u> , Editors: Lynch and Schumaker, 1989, pp. 435-444
96	Malcolm Sabin, "Open Questions in the Application of Multivariate B-splines", <u>Mathematical Methods in Computer Aided Geometric Design</u> , Editors: Lynch and Schumaker, 1989, pp. 529-537
97	H-P Seidel, "A General Subdivision Theorem for Bezier Triangles", <u>Mathematical Methods in Computer Aided Geometric Design</u> , Editors: Lynch and Schumaker, 1989, pp. 573-581
98	Kadi et al., "Conformal maps defined about polynomial curves", <u>Computer Aided Geometric Design</u> , Publisher: Elsevier Science B.V., 1998, pp. 323-337
99	Wallner et al., "Spline Orbifolds", <u>Proceedings of Chamenix</u> , Vanderbilt University Press, 1996, pp. 1-20

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100	A. Nasri, "Curve interpolation in recursively generated B-spline surfaces over arbitrary topology", <u>Computer Aided Geometric Design</u> , Publisher: Elsevier Science B.V., 1997, pp. 15-30
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